Coronary Care Units

The Status in California

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■ *In order to determine the status of Coronary Care Unit activity in California hospitals, especially as it pertains to nurse training, a survery was conducted by the California State Department of Public Health. More than 95 percent of hospitals that were questioned responded. Only one-third of the hospitals reported they neither had a unit nor plans to build one. All units in operation were either directed by an individual medical director or by a Coronary Care Unit Committee.*

The survey indicated that in some hospitals with operational units, nurses were not permitted to perform life-saving resuscitative procedures. All operational units reported in-service education programs of some type. Many hospitals indicated they would like to have Coronary Care Unit training programs to which they could send nurses. The reasons why nurses may not perform important resuscitative procedures are discussed as well as the need for Coronary Care Unit training programs for both physicians and nurses in California.

DEATH FROM ACUTE myocardial infarction among patients in hospital is often due to sudden and unanticipated arrhythmia which, if detected early enough, could be arrested in most cases. Recent advances in constant monitoring systems and improvements in electronic equipment for the treatment of heretofore fatal complications of acute myocardial infarction have led to the establishment of coronary care units (CCU) where patients are kept under constant observation during the acute phase of the disease. Unexpected complications are thus detected early enough for appropriate treatment.

There has been great interest in the establishment of coronary care units in many hospitals in California. Rapid development of these units created the need for specially trained nurses. This demand for trained and experienced personnel has, in turn, focussed attention on the need for specific and specialized training programs.

In an attempt to determine the extent of this need and type of training required, the California Heart Association, California Medical Association, California Nurses' Association, California Hospital Association and the California State Department of Public Health sponsored a special survey which was carried out by the Department of Public Health in June 1967.* Highlights of this survey are presented in this communication.

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Reprint requests to: California State Department of Public Health, Bureau of Chronic Diseases, 2151 Berkeley Way, Berkeley 94704 (Dr. Berry).

*The complete report of the survey is available from the California State Department of Public Health, Bureau of Chronic Diseases, 2151 Berkeley Way, Berkeley 94704.

Methods and Material

The sponsoring agencies developed a questionnaire which was mailed to directors of nursing in all hospitals with 50 or more acute general beds. Data obtained from the questionnaires were tabulated and analyzed by the staff of the Bureau of Chronic Diseases. For the purpose of the survey the following definition of a coronary care unit was developed.

> A Coronary Care Unit is defined as a specialized unit staffed by specially trained nurses and equipped with electronic monitoring equipment and resuscitative devices for the care of patients with acute or suspected myocardial infarction or acute disorders of cardiac rhythm.

Results

Questionnaires were mailed to 304 hospitals; 290 responded, a response rate of 95.4 percent. A total of 70 hospitals (23 percent) reported having coronary care units in operation; an additional 87 (28.6 percent) had definite plans to establish coronary care units. Twenty-eight hospitals (9.2 percent) expected to have units but their plans were indefinite at the time of the survey; 103 hospitals (33.9 percent) had no plans to establish such units. (See Table 1).

Eighty percent of the units in operation reported having medical directors (Table 2). The remaining 20 percent were directed by coronary care unit committees. Among those units expected to open in the future, 77 percent reportedly will have medical directors; 15 percent will be directed by a coronary care unit committee. Ninety-seven percent of the directors of existing units were either cardiologists or internists. Of hospitals with existing and operational units, 88.6 percent have coronary care unit committees independent of whether or not there is a medical director; among planned units, 91 percent indicated they will have such committees.

Table 3 shows a summary of the number of hospitals which permit their coronary care unit nurses to perform resuscitative procedures. In all existing operational units, nurses were reported to perform cardiopulmonary resuscitation; in 80 percent nurses were permitted to carry out defibrillation, 83 percent to begin either internal or external pacing, and 40 percent to administer the drugs urgently needed in cardiac standstill and ventricular fibrillation.

Hospitals with units in operation were questioned as to continuing education courses provided for coronary care unit nurses. All hospitals with full-time CCU nurses reported ongoing in-service

TABLE 1.—*Operational Status of Coronary Care Units in Surveyed Hospitals*

Coronary Care Unit Status	*Number*	*Percent*
All Hospitals	304	100.0
CCU Operational	70	23.0
Definite Plans for CCU	87	28.6
Indefinite Plans for CCU	28	9.2
No Plans for CCU	103	33.9
No Plans Reported	2	0.7
No Response to Survey	14	4.6

TABLE 2.—*CCU Medical Direction and CCU Committees by Operational Status of Coronary Care Units*

CCU Medical Direction and CCU Committees	*Operational CCU*		*Planned CCU*	
	Number	*Percent*	*Number*	*Percent*
Unit Director	70	100.0	87	100.0
Have Medical Director	56	80.0	67	77.0
Directed by CCU Committee	14	20.0	13	14.9
Undecided	..	..	7	8.0
CCU Committee	70	100.0	87	100.0
Have CCU Committee	62	88.6	79	90.8
No CCU Committee	8	11.4	4	4.6
Undecided	..	..	4	4.6

TABLE 3.—*Hospitals that Permit CCU Nurses to Perform Emergency Procedures by Operational Status of Coronary Care Units*

Emergency Procedures and Response	*Operational CCU*		*Planned CCU*	
	Number	*Percent*	*Number*	*Percent*
Cardiopulmonary Resuscitation	70	100.0	87	100.0
Yes	70	100.0	82	94.3
No	..	..	..	..
Not Reported or Undecided	..	..	5	5.7
Defibrillation	70	100.0	87	100.0
Yes	56	80.0	63	72.4
No	13	18.6	2	2.3
Not Reported or Undecided	1	1.4	22	25.3
Pacing—External or Internal	70	100.0	87	100.0
Yes	58	82.9	66	75.9
No	11	15.7	2	2.3
Not Reported or Undecided	1	1.4	19	21.8
Emergency Drug Administration	70	100.0	87	100.0
Yes	28	40.0	46	52.9
No	38	54.3	7	8.0
Not Reported or Undecided	4	5.7	34	39.1

TABLE 4.—*Continuing Education for CCU Nurses in Hospitals with Operational Coronary Care Units*

Continuing Education	*Number*	*Percent*
Continuing Education in CCU Techniques	70	100.0
Yes	64	91.4
No	2	2.9
Not Reported	4	5.7
Frequency of Continuing Education Courses	70	100.0
None	2	2.9
Continuous (not otherwise specified)	3	4.3
Each Week	32	45.7
Each Month	11	15.7
Less than Each Month	11	15.7
Not Reported	11	15.7

TABLE 5.—*Preferred Length of Training Course for CCU Nurses at a Specialized Center, by Operational Status of Coronary Care Units*

Length of Training	*Operational CCU*		*Planned CCU*	
	Number	*Percent*	*Number*	*Percent*
All Hospitals	70	100.0	87	100.0
No Training	11	15.7	3	3.4
Two Weeks	20	28.6	23	26.4
Four Weeks	15	21.4	31	35.6
Six Weeks	8	11.4	6	6.9
Not Reported	16	22.9	24	27.6

programs; nearly 70 percent have sessions at least once each month and almost half have weekly training sessions (Table 4).

In an attempt to determine what kind of training was needed and would be utilized by hospitals with coronary care units, hospital administrators and nursing directors were asked how many nurses they would send to a specialized center for training, and for how long. Only 16 percent of hospitals with ongoing units and 3.4 percent of hospitals with definite plans for such units reported they would not send their nurses for training (Table 5). Nearly all that expressed a desire to send nurses to an outside medical center indicated willingness to give the nurses time off with pay.

The exact number of nurses in need of training is not known, since about one third of the hospitals did not indicate the number of nurses they might send. However, the survey did show a critical need for training programs: 35 hospitals with units indicated that they would like to send a total of 188 nurses to a center for training. Assuming that at least one nurse would be sent from each of the 24 hospitals which did not answer this specific question, a minimum of 212 nurses from all 59 hospitals would be the estimated number who would be sent for training. Of those hospitals with definite plans for coronary care units, 56 indicated they would like to send 280 nurses for specialized training. If, similarly, the 28 non-reporting hospitals in this category sent one nurse each, the minimum number of nurses to be sent for training would be 308 from all 84 hospitals.

Discussion

It is generally agreed that, in a properly run coronary care unit, nurses should be trained and authorized to perform cardiopulmonary resuscitation and defibrillation, to begin cardiac pacing and, within described limits, to give drugs in emergency. Responses to questions in the survey regarding these specific tasks indicated that coronary care unit nurses are either not fully utilized or that the level of training is inadequate for them to be permitted to perform these tasks.

Under-utilization of trained nurses is perhaps due to fear of medical-legal repercussions by either the nurses themselves or hospital administrators. This fear might be alleviated by reference to the joint statement by the California Heart Association, California Medical Association and California Nurses' Association* which recognizes the need for properly trained coronary care nurses to perform life-saving measures in the absence of and under the orders of a physician. This statement, while not a legal precedent, provides support of these professional associations and recognizes the expanded role of the coronary care unit nurse as "standard practice" under the circumstances.

The other reason for nurses not to perform the required life-saving tasks in a coronary care unit is, of course, lack of proper training. This survey indicated a definite desire by nursing directors and willingness on the part of hospital administrators, where there were coronary care units in existence or planned, to send at least some of their nurses for such training at specialized centers.

Extension of estimates made from the survey indicates that approximately 500 nurses would be sent to specialized centers if facilities were available. As this number far exceeds the space available at existing training centers, plans should be considered to increase the availability of center training either by expanding existing centers or establishing new ones.

The estimate of 500 nurses requiring center training is far below the actual number of coro-

*Acute cardiac care—The role of the registered nurse, Calif. Med., 104:228, Mar. 1966.

nary care unit nurses, all of whom should receive proper training. The consensus at the coronary care unit conference held in Washington in June 1967 was that coronary care unit head nurses, in-service educators and supervisors should receive intensive initial training of four weeks or longer at a specialized center.

Although it would be preferable to train all coronary care unit nurses by intensive four-week courses, this is not practical at present. Perhaps the best solution to training coronary care unit staff nurses is to establish local training facilities in one or more hospitals. The faculty for these training programs will be coronary care unit medical directors, cardiologists and internists, and well trained coronary care unit nurses from the local community, used in rotation. Training of this type would be less intensive and of shorter duration—approximately two weeks.

In order for short term local training to succeed, however, it must be combined with adequate continuing in-service education programs in hospitals to which the nurses return. Thus, coronary care unit staff nurses will receive adequate initial training and continuing education to bring them to and maintain them at a high level of proficiency.

Another most vital area of coronary care unit activity at present is the need for properly trained physicians to direct coronary care units. Workers in the field are becoming increasingly concerned about over-emphasis given nurse training, to the almost total exclusion of physician training programs. In order for a coronary care unit to provide proper patient care, it must be directed by a qualified physician skilled in coronary care unit techniques. The coronary care unit director is the cornerstone of all coronary care unit activities. He must be trained in coronary care unit techniques, in proper administration of the unit and in methods of instruction necessary for in-service education for nurses and continuing education for physicians.

Staff physicians who admit and treat patients must also be cognizant of new techniques, new administrative policies and new nursing functions in coronary care units. This orientation could be accomplished by short-term symposia run by interested professional or voluntary agencies.